The 1440D provides a rack or panel mounted measurement of one or two of the following gases: oxygen, carbon dioxide, carbon monoxide and methane.

- Excellent stability and performance
- Low maintenance - no chemical cells to replace or renew
- Variants suitable for flammable/toxic sample gases
- Rack mounting or bench-top configuration.
- Concentration and low flow alarms.

Specification

Gas Measured:	Oxygen	Methane	Carbon Dioxide	Carbon Monoxide
PERFORMANCE				
Technology:	Paramagnetic transducer	Infrared transducer	Infrared transducer	Infrared transducer
Range:	0 - 5, 10, 20, 25, 50, 100%[1]	0 - 5, 25, 50, 100%	0 - 0.25, 0.5, 1.0, 2.5, 5, 10, 25, 50, 100%	0 - 1, 2.5, 10, 25, 50%
Accuracy: (Intrinsic Error)	±0.1% O_2	±1% of full scale	±1% of full scale	±1% of full scale
Linearity:	±0.1% O_2	±1% of full scale	±1% of full scale	±1% of full scale
Repeatability:	±0.1% O_2	±1% of full scale	±1% of full scale	±1% of full scale
Response time (T_{90})	<10 seconds	<10 seconds	<10 seconds	<10 seconds
Zero Drift:	<±0.002% O_2/hour	2% of full scale/week	2% of full scale/week	2% of full scale/week
Span Drift:	<±0.002% O_2/hour	1% of reading/day	1% of reading/day	1% of reading/day
SIGNAL OUTPUTS				
Display:	3½ Digit LED			
Display Resolution:	0.1%			
Analogue Output:	One isolated 4-20mA output (maximum load impedance 600 ohms) and one non-isolated 0-1V output (typical output impedence 470 ohms) per transducer with full zero and span adjustment. The user may assign a second range to each output (Methane/Carbon Dioxide/Carbon Monoxide only, 80% of full scale).			
Alarms:	Two changeover relay contacts rated 1A/110VAC or 1A/28VDC non-inductive per measurement			
PHYSICAL				
Dimensions (W x D x H):	Single unit: 236 x 380 x 178mm (9 x 15 x 7"),		Double unit: 483 x 380 x 178mm (19 x 15 x 7")	
Weight:	Single unit: 5.5kg (12lb) typical,		Double unit: 12kg (26lb) typical	
Case Rating:	IP20 (IEC 529)			

[1] Two ranges are user selectable from those shown

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Power Supply

88 to 264VAC, 47 to 63Hz (45VA maximum)

Ambient Conditions

Temperature:
- Storage:
  - -20 to +70°C (-4 to +158°F)
- Operating:
  - 0 to 45°C (32 to 113°F)*

Relative Humidity:
- 0 to 90% non-condensing

Pressure:
- Oxygen measurement:
  - 80 to 110 kPaa (0.8 to 1.1bara)
- Carbon Dioxide/Carbon Monoxide/Methane:
  - 90 to 110 kPaa (0.9 to 1.1 bara)

* reduces in benchtop case to 0 to 40°C (32 to 104°F)

Warm up time:
- Typically 1 hour

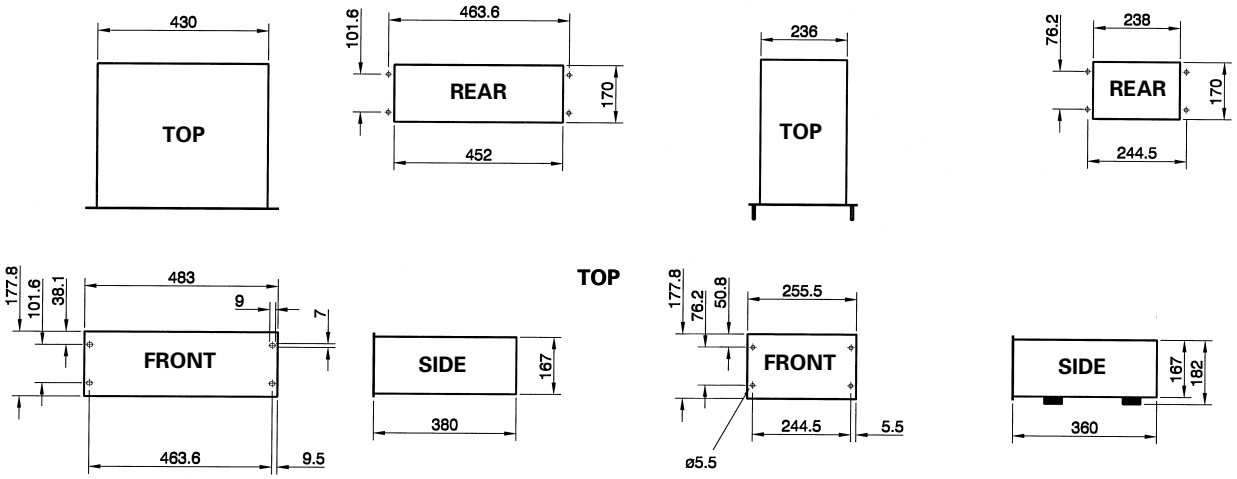
Sample Wetted Materials

Item	Materials
FTX analyser oxygen transducer	Stainless steel, Viton, borosolicate glass, platinum and nickel
FTX analyser methane/ carbon monoxide/ carbon dioxide transducer	Stainless steel, Viton, sapphire, epoxy resin
Additonal materials with STD analyser	Bonded glass fibre, nylon, neoprene, gold on silver, brass, monel, acetyle, polypropylene
Additonal materials with Back Pressure Regulator	Copper, PVC, PVDF, beryllium copper

Sample Gas Conditions

	Standard Analyser (STD)	Standard Analyser with back pressure regulator	Flammable/Toxic sample Analyser (FTX)
Inlet/Outlet Connections	6.4mm (1/4") OD tube DO NOT RESTRICT ANALYSER VENT		3.2mm (1/8") OD tube DO NOT RESTRICT ANALYSER VENT
Inlet Pressure	1 to 10 psig 7 to 70 kPag	17 to 20 psia 120 to 140 kPag	Typically 0.3kpag (30 mmWG) at 200ml/min
Vent Pressure	11.6 to 15.9 psia 80 to 110 kPag		13.0 to 15.9 psia 90 to 110 kPaa
Flow Rate	1 to 6 l/min	1 to 2 l/min	User limited to 250ml/min MAXIMUM
Dew Point	At least 5°C below ambient temperature		At least 5°C below ambient temperature
Temperature	Nominally at ambient temperature		Nominally at ambient temperature
Particulates	<3µm. an internal replaceable, 0.3µm filter is fitted as standard		An external filter of 6µm must be provided by the user
Condition	Clean, non flammable, non toxic*, non corrosive, oil free, dry (see dew point above)		Clean, non-corrosive, oil free, dry (see dew point above), toxic and flammable, but not oxygen enriched samples. The auto-ignition temperature of each flammable gas in the sample must be greater than 200°C.

* For flammable or toxic samples use the 1440FTX



A) Double unit case

B) Single unit case

Dimensions do not include Back Pressure Regulator, if fitted.

Analyser

The 1440D is available in two configurations: the STD version for non-flammable, non-toxic sample gases, and the FTX for flammable and/or toxic sample gases. Both versions are suitable for use only in non-hazardous areas.
The analyser comprises one or two measurement modules, each featuring a high visibility LED display, 0-1VDC non-isolated and 4-20mA isolated outputs, and user controlled concentration alarms, all as standard.
The non-toxic, non flammable analyser (STD version) also includes a low flow alarm (indicated by an LED on the analyser front panel) and Automatic Flow Control Device (AFCD) to control the sample flow through the analyser.
Choose either STD (for non-flammable/ non toxic sample gas), or FTX (for flammable/toxic sample gases).

Single/Right Hand Unit

Choose the measurement module required. Specify the measurement in this option if a single unit is required. If a double unit is required, then this module will be fitted in the right hand side.

Choose from:

Oxygen (two measurement ranges user selectable from 0-5, 10, 20, 25, 50, 100% O_2)

Carbon Dioxide 0 - 0.25%
Carbon Dioxide 0 - 0.5%
Carbon Dioxide 0 - 1%
Carbon Dioxide 0 - 2.5%
Carbon Dioxide 0 - 5%
Carbon Dioxide 0 - 10%
Carbon Dioxide 0 - 25%
Carbon Dioxide 0 - 50%
Carbon Dioxide 0 - 100%

Carbon Monoxide 0 - 1%*
Carbon Monoxide 0 - 2.5%*
Carbon Monoxide 0 - 10%*
Carbon Monoxide 0 - 25%*
Carbon Monoxide 0 - 50%*

Methane 0 - 5%*
Methane 0 - 25%*
Methane 0- 50%*
Methane 0-100%*

Left Hand Unit

Choose the measurement module required. This module will be fitted in the left hand side of a double unit .

Choose from:

Single unit (choose this if a single unit case is required).

Oxygen (two measurement ranges user selectable from 0-5, 10, 20, 25, 50, 100% O_2)

Carbon Dioxide 0 - 0.25%
Carbon Dioxide 0 - 0.5%
Carbon Dioxide 0 - 1%
Carbon Dioxide 0 - 2.5%
Carbon Dioxide 0 - 5%
Carbon Dioxide 0 - 10%
Carbon Dioxide 0 - 25%
Carbon Dioxide 0 - 50%
Carbon Dioxide 0 - 100%

Carbon Monoxide 0 - 1%*
Carbon Monoxide 0 - 2.5%*
Carbon Monoxide 0 - 10%*
Carbon Monoxide 0 - 25%*
Carbon Monoxide 0 - 50%*

Methane 0 - 5%*
Methane 0 - 25%*
Methane 0- 50%*
Methane 0-100%*

or choose a blank panel if no measurement module is required in the left hand side of the unit.

Instrument Case

The analyser can be supplied in one of three case configurations: 19" rack, panel mounting (single or double unit), or a bench top .
The 19" rack mounts come with slides and are suitable for most 19" rack configurations.

Back Pressure Regulator

A back pressure regulator is available for the non-toxic, non-flammable analyser (STD version) to reduce the effects of barometric or sample vent pressure when measuring high gas concentrations.
The back pressure regulator is not available for the toxic/flammable analyser (FTX version).

Power Lead

The 1440 is supplied with a choice of power lead. Choose from:

UK, US or European power lead, or a loose IEC power connector.

Internal Pump

The analyser can be supplied with an internal pump which can be used to pull a sample into the analyser.

Choose from
A pump in the right hand unit
A pump in the left hand unit
or two pumps housed in both the left and right hand units.

Quickstart™ Manual

The 1440 is supplied with a Quickstart™ manual in a variety of languages.

Choose from:

English / French / German

Service Manual

A service manual is available containing technical descriptions, fault diagnosis information, parts removal, refitting and test instructions, tool and test equipment lists, and electrical drawings. It is intended for use by Servomex trained service personnel.

Enquiry & Ordering Information

To Specify the analyser you require, enter your details below, tick one option in each box and post or fax to your local Servomex company, Agent, or representative.

Name:

Company:

Address:

Order/Enquiry Number

Please send me details of planned maintenance services & recommended spares ❑

Analyser

1440 Gas Analyser	STD	FTX
(01440D1	❑ STD	❑ FTX)

Single/Right Hand Unit — 1

oxygen	❑ (10)	❑ (10)
carbon dioxide 0.25%	❑ (21)	❑ (21)
carbon dioxide 0.5%	❑ (22)	❑ (22)
carbon dioxide 1%	❑ (23)	❑ (23)
carbon dioxide 2.5%	❑ (24)	❑ (24)
carbon dioxide 5%	❑ (25)	❑ (25)
carbon dioxide 10%	❑ (26)	❑ (26)
carbon dioxide 25%	❑ (27)	❑ (27)
carbon dioxide 50%	❑ (28)	❑ (28)
carbon dioxide 100%	❑ (29)	❑ (29)
carbon monoxide 1%	N/A	❑ (33)
carbon monoxide 2.5%	N/A	❑ (34)
carbon monoxide 10%	N/A	❑ (36)
carbon monoxide 25%	N/A	❑ (37)
carbon monoxide 50%	N/A	❑ (38)
methane 5%	N/A	❑ (45)
methane 25%	N/A	❑ (47)
methane 50%	N/A	❑ (48)
methane 100%	N/A	❑ (49)

Left Hand Unit — 2

single unit	❑ (00)	❑ (00)
oxygen	❑ (10)	❑ (10)
carbon dioxide 0.25%	❑ (21)	❑ (21)
carbon dioxide 0.5%	❑ (22)	❑ (22)
carbon dioxide 1%	❑ (23)	❑ (23)
carbon dioxide 2.5%	❑ (24)	❑ (24)
carbon dioxide 5%	❑ (25)	❑ (25)
carbon dioxide 10%	❑ (26)	❑ (26)
carbon dioxide 25%	❑ (27)	❑ (27)
carbon dioxide 50%	❑ (28)	❑ (28)
carbon dioxide 100%	❑ (29)	❑ (29)
carbon monoxide 1%	N/A	❑ (33)
carbon monoxide 2.5%	N/A	❑ (34)
carbon monoxide 10%	N/A	❑ (36)
carbon monoxide 25%	N/A	❑ (37)
carbon monoxide 50%	N/A	❑ (38)
methane 5%	N/A	❑ (45)
methane 25%	N/A	❑ (47)
methane 50%	N/A	❑ (48)
methane 100%	N/A	❑ (49)
Blank Panel	❑ (99)	❑ (99)

Instrument Case — 3

Single case bench top	❑ (1)	❑ (1)
Single case panel mounted	❑ (2)	❑ (2)
Dual case single measurement bench top	❑ (3)	❑ (3
Dual case single measurement 19" Rack Mounted	❑ (4)	❑ (4)
Dual case dual measurement bench top	❑ (5)	❑ (5)
Dual case dual measurement 19" Rack Mounted	❑ (6)	❑ (6)

Back Pressure Regulator — 4

None	❑ (0)	❑ (0)
Right hand and single units	❑ (1)	N/A
Left hand units	❑ (2)	N/A
Right and left hand units	❑ (3)	N/A

Power Lead — 5

One UK Power lead	❑ (1)	❑ (1)
One US Power lead	❑ (2)	❑ (2)
One European Power lead	❑ (3)	❑ (3)
One Loose IEC connector	❑ (4)	❑ (4)

Internal Pump — 6

None	❑ (0)	N/A
Internal pump right hand unit only	❑ (1)	N/A
Internal pump left hand unit only	❑ (2)	N/A
Internal pump both left and right hand units	❑ (3)	N/A

Quickstart Manual — 7

English	❑ (1)	❑ (1)
French	❑ (2)	❑ (2)
German	❑ (3)	❑ (3)

Service Manual — 8

Not required	❑ (0)	❑ (0)
English	❑ (1)	❑ (1)

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EC Directive Compliance

The 1440D complies with the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC (as amended by Directive 92/31/EEC), both as amended by Directive 93/68/EEC.

It conforms to the following harmonised European standards for electromagnetic compatibility:

EN 50081-1: Generic EMC emission standard.

EN 50082-1: Generic EMC immunity standard.

This product is rated for "Installation category II" in accordance with IEC 664.

This product is rated for "Pollution Degree 2" in accordance with IEC 664.

Performance Specification Continued

Gas Measured	Oxygen	Methane	Carbon Dioxide	Carbon Monoxide
Output fluctuation (peak to peak noise):	±0.02%O_2	0.5% of selected range	0.5% of selected range	0.5% of selected range
Ambient temperature coefficient:	<±0.05% O_2/10°C zero <±0.3% reading/10°C span	1% of full scale per 10°C change	1% of full scale per 10°C change	1% of full scale per 10°C change
Ambient pressure coeffcient: (with back pressure regulation, only available for STD analyser):	Directly proportional (0.025% reading per mbar)	>0.15% of reading per mbar within specified range (0.025% reading per mbar)	>0.15% of reading per mbar within specified range (0.025% reading per mbar)	>0.15% of reading per mbar within specified range (0.025% reading per mbar)
Sample flow effect:	0.1% of O_2 for 50 to 200ml/min	3% of full scale for 50 to 200ml/min	3% of full scale for 50 to 200ml/min	3% of full scale 50 to 200ml/min

The performance specification has been written, and verified under constant conditions, in accordance with the international standard EN 61207: Part 1 & 2: 1994 "Expression of performance of gas analysers"

Servomex companies, agents and representatives are located throughout the world. Your nearest contact is:

Visit www.servomex.com for technical data sheets, application and technology information for all Servomex analysers.

Servomex has a policy of constant product improvement and therefore reserves the right to change specifications without notice.

Certificate No._____Q05166
BS EN ISO 9001

Servomex
LEADERS IN GAS ANALYSIS

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